Policy for Early Access to the Center for Nanoscale Materials at Argonne National Laboratory

1. Objective

The objective of the Center for Nanoscale Materials (CNM) early-access program is to provide the user community with access to equipment, facilities, and personnel that support CNM's overall focus on nanoscale materials. Early-access users may apply for access to CNM's existing capabilities through a web-based proposal submission and peer review process at http://nano.anl.gov, under "Becoming a User."

2. Proposal Guidelines

Before submitting a proposal, prospective users should first study the CNM scientific themes and identify the appropriate capabilities related to their research. Although capabilities are sorted by theme, users should be aware that many capabilities cut across theme lines and are intended to be used across the CNM scientific portfolio. Users should then consult the appropriate CNM contact, listed on the web site. These individuals can help prospective users to understand the CNM's capabilities, as well as provide guidance in writing proposals.

Early-access users can submit two types of proposals:

- An individual proposal, which describes a single experiment with specific tools that are part of the CNM early-access program or
- A program proposal, which describes an experimental program that may require a series of visits to the CNM over an extended period.

(In the case of the Virtual Fab Lab theme, "experiment" throughout this document should be understood to mean a project relevant to nanoscale theory and modeling.)

Priority will be given to proposals that are within the scientific theme areas identified for the CNM. Proposals that overlap more than one area are encouraged. Proposals in other areas that require CNM nanoscience capabilities or expertise will be considered as permitted by limited program resources.

Proposals are submitted through a web-based process found at http://nano.anl.gov, under "Becoming a User." More detailed information on the proposal submission mechanism can be found there as well. Proposers will also be required to register in Argonne National Laboratory's National User Facilities On-Line Registration System, a link to which is provided on the web site.

2.1 Proposal Content

An early-access proposal should include the following items:

- Title of the proposal.
- Name and contact information (title, affiliation, address, telephone and fax numbers, and e-mail address) for the Principal Investigator.

- Name and contact information (title, affiliation, address, telephone and fax numbers, and e-mail address) for relevant collaborating Co-Investigators.
- Identification as an individual experiment or program proposal.
- Description of the proposed experiment or program, including the instrument or facilities needed and identify the scientific theme(s) into which the proposal fits. Indicate and justify which capabilities will be used and the amount of time required for individual experiments. Program proposals must also specify the anticipated duration of the program (maximum of one year) and the projected number of experiments to be performed.
- Scientific impact/justification for the proposed experiment should clearly describe how the scientific community, the CNM, and its programs will benefit and outline anticipated contributions to the CNM science and technology base.
- While CNM will conduct a safety review of each proposal, the user should briefly state any potential safety issues with required materials, processes, or procedures contained in the proposal.
- Brief CV (maximum two pages) of the Principal Investigator, which includes a short biography, description of prior work, and a list of publications most related to the proposal. Half-page biographies of up to two Co-Investigators may also be appended, if these are required to establish competency for a group proposal.

3. Proposal Review Process

Proposals will be directed first to the CNM for a feasibility review by instrument scientists. If a proposal is determined to be feasible and can safely be executed at the CNM, it will be submitted to the Early-Access Proposal Review Committee (PRC) for scientific evaluation. If a proposal is not considered feasible, it will be returned to the proposer with appropriate comments. Investigators are encouraged to resubmit revised proposals.

3.1 Proposal Review Committee

The PRC will evaluate early-access proposals. The rank order of scores generated by the PRC will be the primary input in allocating facility access to early-access users. The PRC will also provide feedback to the investigators on the quality of their proposals and, where relevant, perceived weaknesses. The PRC will consist of CNM Theme Leaders and invited peer reviewers (not affiliated with the CNM) with expertise in various fields related to nanoscale research. Appointment to the PRC will be made by the CNM Director or designate on the basis of expertise and nominations from the user community. PRC subcommittees related to the CNM's scientific themes may be appointed to ensure knowledgeable and efficient handling of user proposals.

3.2 Evaluation Criteria

The PRC will use criteria endorsed by the International Union of Pure and Applied Physics to evaluate user proposals:

- Scientific merit,
- Technical feasibility,
- Capability of the experimental group, and

- Availability of the required resources.

The principal evaluation criterion will be scientific merit. Proposals that clearly require the unique capabilities of CNM and contribute to its established scientific theme areas or programs will be given higher priority. Criteria may also be supplemented, for example to justify the need for special equipment or to satisfy safety and environmental concerns. Special considerations will be given to encourage and support first-time users so they can compete effectively in the peer-review system.

3.3 Rating Process

Proposal reviewers will evaluate each proposal according to the criteria described above and assign a numerical rating. In a subsequent proposal cycle, unsuccessful proposers can submit a new or revised proposal, that addresses PRC comments in order to improve the rating and thus improve chances of receiving facility time.

Proposals will be rated on a scale of 1 to 5 (1 being the highest rating and 5 being the lowest). The user will receive written notification of the rating and comments to improve the rating if needed. Proposals are rated according to the scale below:

1. The proposal involves highly innovative research of great importance. It is a project that will either launch a new direction for nanoscience research or will clearly impact one of the outstanding problems in the field of nanoscience. A nanoscience facility is essential to perform the research. The experimenters have an excellent track record, and the results obtained are very likely to have high impact (e.g., to be published in a leading journal).
2. The proposal presents a well-conceived, original, research project with a strong potential for making an important contribution to the field of nanoscience research. A nanoscience facility is essential to perform the research. The experimenters have a good track record, and the results obtained are likely to have high impact.
3. The proposed work is an extension of a nanoscience project that has already had significant impact. Although not groundbreaking, it is near cutting-edge and is likely to produce significant results. The need for a nanoscience facility is evident.
4. A nanoscience facility is required and the science is interesting, but the proposal describes routine measurements in a well-worked area of research. The results from the research, although useful, are not likely to have a high impact.
5. Serious doubt exists regarding the potential impact and/or feasibility of the proposed project, or there is no evident need for the use of a nanoscience facility.

4. User Modes

The CNM early-access program invites proposals from the external scientific community, including:

- *Individual experiments* requiring access to specific tools or facilities that are part of the CNM early-access program. Access to the specified capabilities will be arranged through CNM scientists and CNM technical support personnel.
- *Programs* that will require multiple visits and provide access to a range of equipment and facilities that are part of the CNM user program, over a specified duration.

Individual and group proposals, including collaborative proposals with CNM staff, are encouraged.

5. Proprietary and Nonproprietary Research

Users of the facilities include academic, industrial, and government scientists and engineers. The vast majority of user research should be in the public domain and thus must be disseminated by publication in the open literature. However, some percentage of the time available on CNM capabilities may be allocated for proprietary research that uses these unique facilities to benefit the national economy. Therefore, those conducting proprietary research may access the facility as early-access users. Full-cost recovery will be obtained for proprietary research. Efforts will be made to secure appropriate intellectual property control for proprietary users to permit them to exploit their experimental results.

6. User Access Allocation, Scheduling, and Recording

CNM management will have ultimate responsibility and accountability for effective and efficient use of time on all equipment and facilities that are part of the early-access program. Allocation of access to equipment and facilities for early-access users will be done on the basis of the rankings provided by the PRC. Once access has been allocated, the user will be contacted to schedule the experiment. Time allocation and scheduling of user access will be centralized in the CNM User Office using expert input from CNM staff and the theme contacts. Site access to Argonne National Laboratory is controlled, and CNM users will be subject to the entrance requirements of the Laboratory, as indicated in its National User Facilities On-Line Registration System. For extended visits, all CNM Users will have access to onsite housing at the Argonne Guest House.

7. Safety, Orientation, and Training

The user will adhere to all hazard control requirements, as specified by Argonne National Laboratory and the Center for Nanoscale Materials safety panel. Because of the nature of the early-access program, the necessary orientation, training, and operating procedures will be assessed on a case-by-case basis. An experimental safety review, will be conducted and consider the materials, processes, and procedures required for safe and effective conduct of the proposed experiment, including any equipment or facility assembly or temporary relocation of instruments and materials from the user's laboratory.